Appendix C:
Additional Hazardous Waste Information

Appendix C includes:

- ◇ Example Hazardous Waste Manifest
- ◇ NHDES Fact Sheet:
  Waste Mercury-Containing Lamps: Management Requirements for Handlers and Transporters
- ◇ Listed Hazardous Wastes Most Likely Used by Printers
- ◇ Sample Posting for Emergency Information

NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES
WASTE MANAGEMENT DIVISION
Health and Human Services Building
6 Hazen Drive, Concord, NH 03301-6509
603-271-2921

FOR STATE USE ONLY

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. | Manifest Document No.

2. Page 1 of

Information in the shaded areas is not required by Federal law, but may be required by State Law.

3. Generator's Name and Mailing Address

A. State Manifest Document Number: NH H 0033998

B. State Generator's ID (Location)

4. Generator's Phone ( )

5. Transporter 1 Company Name | 6. US EPA ID Number

C. State Transporter's ID

D. Transporter's Phone

7. Transporter 2 Company Name | 8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address | 10. US EPA ID Number

G. State Facility's ID (Not Required)

H. Facility's Phone

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.					EPA / STATE
b.					EPA / STATE
c.					EPA / STATE
d.					EPA / STATE

J. Additional Description for Materials Listed Above

a. c.

b. d.

K. Handling Codes for Wastes Listed Above

	Interim	Final		Interim	Final
a.			c.		
b.			d.		

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name | Signature | Month Day Year

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name | Signature | Month Day Year

EPA Form 8700-22 (Rev. 9-88) Previous Editions are Obsolete

GENERATOR — TRANSPORTER — FACILITY

TO REPORT A SPILL, CONTACT: NATIONAL EMERGENCY RESPONSE CENTER (1-800-424-8802), THE N.H. DEPT. OF SAFETY (1-800-346-4009) AND THE NH WASTE MANAGEMENT DIVISION (271-2942). TO REPORT AN OIL SPILL: NHWSPCD (271-3440).

COPY 1: DESTINATION STATE-MAILED BY FACILITY

NH H 0033998

Waste Mercury-Containing Lamps: Management Requirements for Handlers and Transporters

INTRODUCTION

Fluorescent and high intensity discharge (HID) lamps contain a small quantity of mercury that may pose a hazard to human health or the environment when improperly managed. Due to this concern, the New Hampshire Department of Environmental Services (DES) has developed a policy on waste mercury-containing lamps which promotes recycling, pollution prevention and safe handling methods. The policy is explained in this fact sheet.

Why is mercury an environmental concern? Mercury is a heavy metal that can accumulate in living tissue and cause adverse health effects. A small amount of mercury is an essential component in fluorescent and HID lamps, but when a lamp is broken or disposed of in a solid waste landfill or incinerator, the mercury can contaminate air, soil, surface water and groundwater. In New Hampshire, mercury has been detected in freshwater fish and a statewide fish consumption advisory has been issued by the NH Department of Health and Human Services. For more information on mercury in NH's environment, see DES's *New Hampshire Mercury Reduction Strategy*, published October 1998.

Are there other contaminants in lamps we should be concerned about? HID lamps also contain small quantities of lead. Incandescent lamps may contain lead and cadmium.

Is fluorescent lighting still a good environmental and economic choice? Yes. The use of energy-efficient lighting reduces electricity needed from power plants, which then reduces harmful emissions of mercury, carbon dioxide and nitrogen oxide. Also, when less energy is demanded, electric utilities need less generating capacity, resulting in more savings for customers.

DES POLICY FOR THE HANDLING OF MERCURY-CONTAINING LAMPS

Waste mercury-containing lamps generated by businesses, industry and institutions may **not** be disposed of as a solid waste unless they are below the regulatory limits for mercury when subjected to a toxicity test required by the U.S. Environmental Protection Agency (EPA) and DES. If test results from the Toxicity Characteristic Procedure (TCLP) demonstrate a particular lamp is below the regulatory level of .2 mg/liter, it may legally be disposed as solid waste. However, because these lamps still contain mercury, it is strongly recommended they be recycled since they can contribute mercury to the environment.
Generators of waste are responsible for determining whether their wastes are hazardous and, if so, managing them in accordance with the requirements of the *NH Hazardous Waste Rules*.

These requirements may include use of a hazardous waste manifest, NH registered hazardous waste transporter, and delivery to an authorized hazardous waste facility.

Alternatively, waste mercury-containing lamps may be handled under DES's universal waste policy, adopted October 14, 1998 (also adopted into Federal Universal Waste Rule; 40 CFR 273), which is further described in this fact sheet. DES believes that recycling is the preferred option for managing waste mercury-containing lamps and that this policy will promote the recycling and proper management of waste mercury-containing lamps.

Universal Waste
"Universal wastes" are wastes which meet the definition of hazardous waste in the *NH Hazardous Waste Rules*, but which, during accumulation and transport, pose a relatively low risk compared to other hazardous wastes. Wastes which DES has determined meet universal waste criteria include used antifreeze, mercury-containing lamps and devices, certain types of batteries, and recalled or suspended hazardous waste pesticides regulated under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). EPA recently added mercury-containing lamps to the Federal Universal Waste Rule which also includes thermostats, batteries**,** and recalled or suspended pesticides.

Generator Status
Under this policy, hazardous waste generators are not required to include waste mercury-containing lamps and other universal wastes in their calculation of generator status in accordance with the *NH Hazardous Waste Rules*, Env-Wm 503. Universal wastes, when recycled, are also not subject to the generator fee required by Env-Wm 512.02.

Universal Waste Consolidation
A facility may collect waste mercury-containing lamps from other sites or generators without a permit, provided the facility meets the handler requirements described in this fact sheet and complies with other applicable federal, state, and local regulatory requirements.

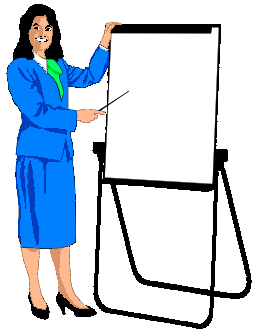
REQUIREMENTS FOR HANDLERS

A **"handler"** of waste mercury-containing lamps means: (1) a generator of universal waste mercury-containing lamps; or (2) an owner or operator of a facility that receives universal waste mercury-containing lamps from other handlers, accumulates the lamps, and sends the lamps to another handler or to a destination facility. Handlers of universal waste mercury-containing lamps must either meet the following standards or comply with the generator and/or facility requirements of the *NH Hazardous Waste Rules.*

1. **Release Prevention**
Manage waste mercury-containing lamps in a way that prevents releases of mercury to the environment. See the section titled: *"Best Management Practices for Mercury-Containing Lamps"* later in this fact sheet.

2. **Quantity Limits**

Accumulate no more than a combined total of 20,000 kilograms (approximately 44,000 pounds) of waste mercury-containing lamps and other universal wastes on-site at any time. Approximately 70,400 forty-eight inch fluorescent tubes would weigh 44,000 pounds.



Universal waste handlers are either large or small quantity handlers:

a. Small Quantity Handlers - may accumulate no more than a combined total of 5,000 kilograms (approximately 11,000 pounds) of waste mercury-containing lamps and other universal wastes on-site at any time. Approximately 17,600 forty-eight inch fluorescent tubes would weigh 11,000 pounds.

b. Large Quantity Handlers - may accumulate more than 5,000 kilograms of combined universal waste by complying with the additional requirements for large quantity handlers found in this fact sheet in the section titled, *Additional Requirements for Large Quantity Handlers*.

3. **Labeling**

Clearly label or mark each lamp or container of waste lamps with any one of the following phrases: "Universal Waste--Mercury- Containing Lamp(s)", or "Waste Mercury-Containing Lamp(s)," or "Used Mercury-Containing Lamp(s)".

4. **Accumulation Time Limits**

a. Accumulate waste mercury-containing lamps for no longer than one year from the date the waste mercury-containing lamps are generated or received from another handler.

b. Demonstrate the length of time that the waste mercury-containing lamps have been accumulated starting from the date the lamps became waste or were received. The handler may make this demonstration by:

(1) marking or labeling containers with the starting accumulation date; or
(2) maintaining an inventory system on-site that identifies the earliest date lamps were added to a container or received from off-site.

5. **Training**

Ensure that all employees who handle or have responsibility for managing waste mercury-containing lamps are thoroughly familiar appropriante handling and emergency procedures.

6. **Off-Site Shipments**

a. Handlers are prohibited from sending or taking waste mercury-containing lamps to a place other than another handler, a mercury-containing lamp recycling facility, or an authorized hazardous waste facility.

b. Prior to sending a shipment of waste mercury-containing lamps to another handler or destination facility, the originating handler must ensure that the receiving handler agrees to receive the shipment.

c. Shipments must meet all applicable United States Department of Transportation (US DOT) and New Hampshire Department of Safety (NH DOS) regulations for mercury-containing lamps.

d. If a waste mercury-containing lamp shipment is rejected by an intermediate handler or destination facility, arrangements must be made by the originating handler to:

(1) receive the waste lamps back when notified that the shipment has been rejected, or
(2) send the waste lamp shipment to an alternate facility.

7. **Exports**

A handler of waste mercury-containing lamps who sends the lamps to a foreign destination must comply with the requirements for international shipments as set forth in Env-Wm 510.06 of the *NH Hazardous Waste Rules*.

ADDITIONAL REQUIREMENTS FOR LARGE QUANTITY HANDLERS

A handler may collect more than 5,000 kilograms of combined universal wastes if he/she complies with all handler requirements in this fact sheet and with the following additional requirements.

1. Prior to collecting more than 5,000 kilograms of combined universal wastes, notify the NH DES of this activity and obtain an EPA Identification Number if you do not already have one.

2. Keep records for 3 years on each shipment of waste received or sent. These records must include:

a. the date of each shipment;
b. the quantities of each shipment; and
c. the name and address of the handler or facility from which waste lamps were received or shipped to.

REQUIREMENTS FOR TRANSPORTERS

1. Transporters are not required to obtain a NH hazardous waste transporter registration or use a hazardous waste manifest for mercury-containing lamps, but must meet all applicable US DOT and NH DOS regulations.

2. Transporters are prohibited from sending or taking waste mercury-containing lamps to a place other than:

a. another handler;
b. a mercury-containing lamp recycling facility; or
c. an authorized hazardous waste facility.

3. **Staging During Transportation**

a. Transporters who remove waste mercury-containing lamps from their vehicles and stage them temporarily are not required to obtain a hazardous waste transfer facility permit, but are subject to US DOT and NH DOS regulations.

b. Transporters who stage waste mercury-containing lamps for more than 10 days must also meet universal waste handler requirements.

c. Transporters must not stage more than a combined total of 20,000 kilograms (approximately 44,000 pounds) of waste mercury-containing lamps and other universal wastes on-site at any time.

4. **Exports**

Transporters taking waste mercury-containing lamps to a foreign destination must comply with the requirements for international shipments as set forth in Env-Wm 604.04 of the *NH Hazardous Waste Rules*.

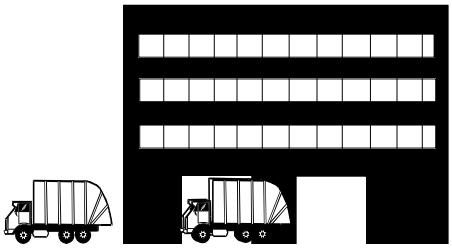
REQUIREMENTS FOR HANDLERS AND TRANSPORTERS

Prohibitions

Handlers and transporters are prohibited from dismantling, crushing, or treating mercury-containing lamps under this policy. If a handler or transporter uses a lamp crusher, s/he is subject to the full requirements of the *NH Hazardous Waste Rules*.

Handling Procedures for Broken or Damaged Lamps

1. Immediately contain and clean up all releases from broken, leaking or damaged mercury-containing lamps.



2. Place any broken or damaged lamps and any residues resulting from breakage or damage in a secure container.

3. The container must be closed and sealed, structurally sound and compatible with the broken lamps. A plastic lined box, fiber drum, or a plastic bucket with a lid that seals is recommended since some types of metal containers may be incompatible with mercury. Ensure the container is clean because if it is contaminated with other chemicals, those substances may react with the mercury.

4. Accidentally broken lamps may be sent to a recycling facility or a hazardous waste treatment, storage or disposal facility authorized to accept broken lamps. All applicable US DOT packaging and shipping requirements for broken mercury-containing lamps must be met.

FOR MORE INFORMATION

Questions on this policy should be directed to DES's Pollution Prevention & Education Section at 603-271-2956 or the Hazardous Waste Compliance Section at 603-271-2942.

A list of mercury containing lamp recycling facilities, DES's *New Hampshire Mercury Reduction Strategy*, copies of other fact sheets, and the NH *Hazardous Waste Rules* are available from DES's Public Information and Permitting Office at 603-271-2975, (TDD Access: Relay NH 1-800-735-2964). Copies of DES fact sheets and rules are also available on DES's web site at www.state.nh.us/des.

Information on US DOT regulations can be obtained from the NH Department of Safety, Hazmat Unit at 603-271-3349.

BEST MANAGEMENT PRACTICES FOR MERCURY-CONTAINING LAMPS

The following practices are recommended to prevent breakage:

(1) Store used intact lamps in one of the following containers:
a. the same boxes that new lamps were shipped in or other boxes of similar size; or
b. a fiber drum.

(2) Ensure containers are: sturdy; without holes, rips or tears; and stable (to prevent tipping over).

(3) Fluorescent tube lamps (e.g, T-8, T-12) should be stored upright. Metal halide, mercury vapor; and High Intensity Discharge (HID) lamps should be wrapped or packaged individually.

(4) Use box spacers between lamps to prevent breakage.

(5) Do not pack too many lamps into a container; the pressure could lead to breakage.

(6) Do not store too few lamps in a container unless there is enough packing material to prevent breakage.

(7) Do not tape lamps together. Many recycling facilities will not accept lamps which have been taped together.

(8) Label drums: "HANDLE WITH CARE / FRAGILE" (in addition to identifying the contents as required by DES's policy).

(9) Store boxes in a designated storage location away from high traffic areas.

(10) Do not over stack. Stack filled boxes no wider than five across with each row perpendicular to the ones below it. Stacks should be no higher than five feet so lamps on the bottom are not crushed by the weight.

(11) Avoid storing cardboard boxes and drums outside where they will be exposed to moisture. Use plastic containers if lamps must be stored outside.

(12) Do not store lamps in a metal drum because this can lead to breakage.

(13) Seal boxes with tape as soon as they are filled.

Cardboard boxes and fiber drums can be ordered from a lamp recycling facility, through a catalog, or purchased from carton distributors (see "Boxes" in the Yellow Pages).

<u>Disclaimer</u>: Information contained in this fact sheet is current as of August 5, 1999. Policy and regulatory changes occurring after this date may affect part or all of this information. For questions on the status of this information, contact DES at 603-271-2942.

LISTED HAZARDOUS WASTES MOST LIKELY USED BY PRINTERS

Env-Wm 402.06 Generic Industrial Process Wastes.

(a) EPA listed generic industrial process wastes shall be as listed in Table 4.5 below:

Table 4.5 EPA Generic Industrial Process Wastes

Industry and EPA Hazardous Waste Number	Hazardous Waste	Hazard Code
Generic:		
F001	The following spent halogenated solvents used in degreasing: Tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing containing, before use, a total of 10 percent or more, by volume, of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(T)
F002	The following spent halogenated solvents: Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane, and 1,1,2- trichloroethane; all spent solvent mixtures/blends containing, before use, a total of 10 percent or more, by volume, of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(T)
F003	The following spent non-halogenated solvents: Xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, only the above spent non-halogenated solvents; all spent solvent mixtures/blends containing, before use, one or more of the above non-halogenated solvents, and, a total of 10 percent or more, by volume, of one or more of those solvents listed in F001, F002, F004, and F005; and stillbottoms from the recovery of these spent solvents and spent solvent mixtures.	(I)*
F004	The following spent non-halogenated solvents: Cresols and cresylic acid, and nitrobenzene; all spent solvent mixtures/blends containing, before use, a total of 10 percent or more, by volume, of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, and F005; and still	(T)

Industry and EPA Hazardous Waste Number	Hazardous Waste	Hazard Code
	bottoms from the recovery of these spent solvents and spent solvent mixtures.	
F005	The following spent non-halogenated solvents: Toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing, before use, a total of 10 percent or more, by volume, of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(I,T)
F006	Wastewater treatment sludges from electroplating operations except from the following processes: (1) Sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel;(3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.	(T)
F007	Spent cyanide plating bath solutions from electroplating operations.	(R,T)
F008	Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.	(R,T)
F009	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.	(R,T)
F010	Quenching bath residues from oil baths from metal heat treating operations where cyanides are used in the process.	(R,T)
F011	Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations.	(R,T)
F012	Quenching waste water treatment sludges from metal heat treating operations where cyanides are used in the process.	(T)
F019	Wastewater treatment sludges from the chemical conversion coating of aluminum except from zirconium phosphating in aluminum can washing when such phosphating is an exclusive conversion coating process.	(T)
F020	Wastes, except wastewater and spent carbon from hydrogen chloride purification, from the production or manufacturing use, as a reactant, chemical intermediate, or component in a formulating process, of tri or tetrachlorophenol, or of intermediates used to produce their pesticide derivatives. Wastes from the production of Hexachlorophene from highly purified 2,4,5-trichlorophenol shall not be included with the wastes listed under the F020 hazardous waste number.	(H)
F021	Wastes, except wastewater and spent carbon from hydrogen chloride purification, from the production or manufacturing use as a reactant, chemical intermediate, or component in a formulating process, of	(H)

Industry and EPA Hazardous Waste Number	Hazardous Waste	Hazard Code
	pentachlorophenol, or of intermediates used to produce its derivatives.	
F022	Wastes, except wastewater and spent carbon from hydrogen chloride purification, from the production or manufacturing use as a reactant, chemical intermediate, or component in a formulating process, of tetra-, penta-, or hexachlorobenzenes under alkaline conditions.	(H)
F023	Wastes, except wastewater and spent carbon from hydrogen chloride purification, from the production of materials on equipment previously used for the production or manufacturing use as a reactant, chemical intermediate, or component in a formulating process, of tri and tetrachlorophenols. Wastes from equipment used only for the production or use of Hexachlorophene from highly purified 2,4,5-trichlorophenol shall not be included with the wastes listed under the F023 hazardous waste number.	(H)
F024	Process wastes, including but not limited to, distillation residues, heavy ends, tars, and reactor clean-out wastes, from the production of certain chlorinated aliphatic hydrocarbons by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from 1 to and including 5, with varying amounts and positions of chlorine substitution. This listing does not include wastewaters, wastewater treatment sludges, spent catalysts, and wastes listed in Env-Wm 402.06 and 402.07.	(T)
F025	Condensed light ends, spent filters and filter aids, and spent desiccant wastes from the production of certain chlorinated aliphatic hydrocarbons, by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from 1 to and including 5, with varying amounts and positions of chlorine substitution.	(T)
F026	Wastes, except wastewater and spent carbon from hydrogen chloride purification, from the production of materials on equipment previously used for the manufacturing use, as a reactant, chemical intermediate, or component in a formulating process, of tetra-, penta-, or hexachlorobenzene under alkaline conditions.	(H)
F027	Discarded unused formulations containing tri-, tetra-, or pentachlorophenol or discarded unused formulations containing compounds derived from these chlorophenols. Formulations containing Hexachlorophene synthesized from prepurified 2,4,5-trichlorophenol as the sole component shall not be included with the wastes listed under the F027 hazardous waste number.	(H)
F028	Residues resulting from the incineration or thermal treatment of soil contaminated with EPA Hazardous Waste Numbers F020, F021, F022, F023, F026, and F027.	(T)

(b) The hazard codes (I, T) shall be used to specify mixtures of F003 with F001, F002, F004, and F005 wastes which would then contain ignitable and toxic constituents.

(c) New Hampshire listed generic process wastes shall be as listed in Table 4.6 below:

Table 4.6 New Hampshire Generic Process Wastes

Industry and EPA Hazardous Waste Number	Hazardous Waste	Hazard Code
NH01	Used Oil	(T)
NH51 to NH74	Reserved	

Env-Wm 402.07 Specific Industrial Process Wastes.

(a) EPA listed specific industrial process wastes shall be as listed in Table 4.7 below:

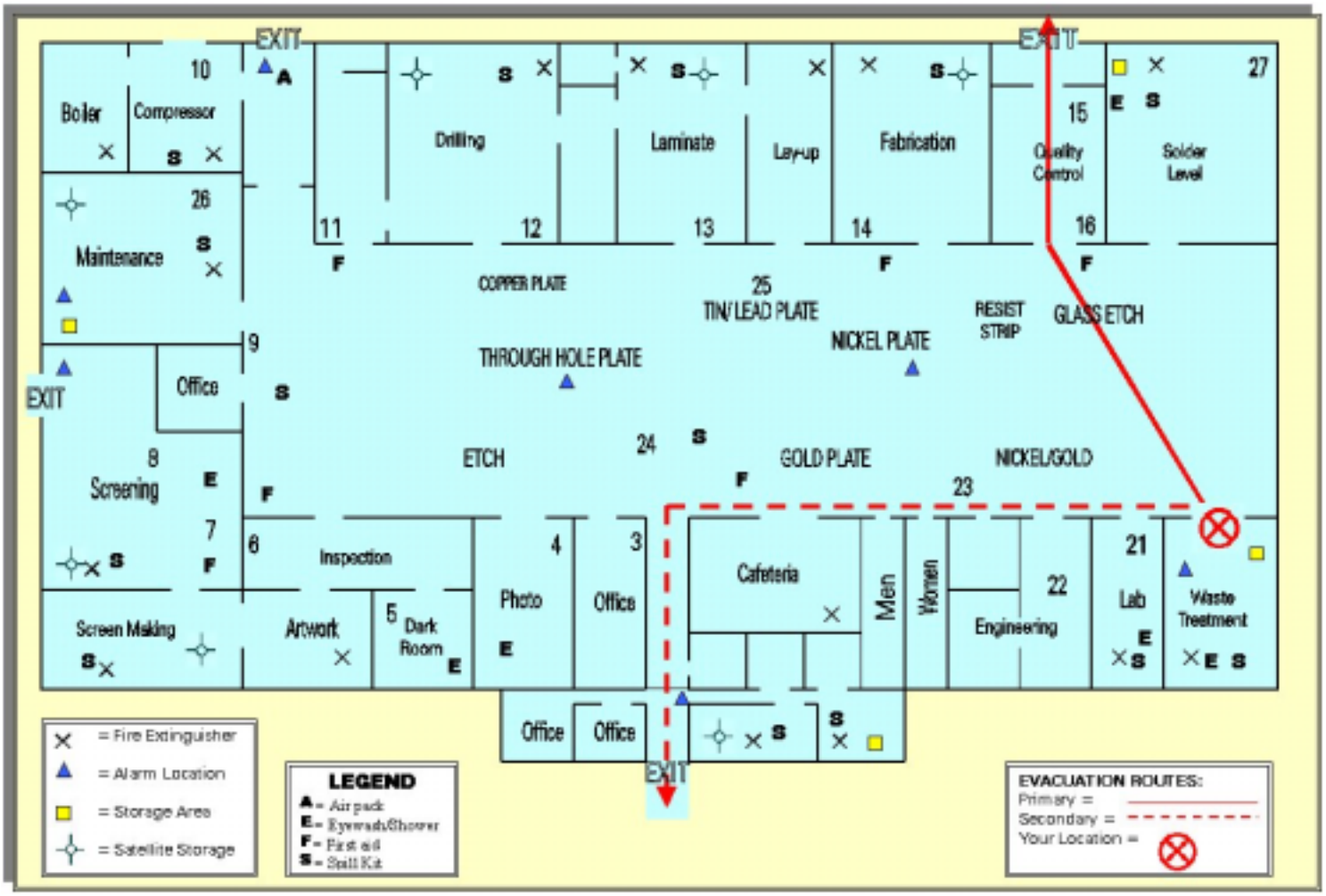
Sample Posting

EMERGENCY RESPONSE NOTIFICATION LIST

CONTACT	PHONE NUMBER
FIRE:	911
POLICE:	911
AMBULANCE:	(603) 555-1111
HOSPITAL:	(603) 555-2222
NH DES SPECIAL INVESTIGATIONS/ EMERGENCY RESPONSE:	(603) 271-3899 *(Mon-Fri, 8:00 am - 4:00 pm)*
NH STATE POLICE:	(800) 346-4009 *(All other times: Nights, Weekends, Holidays)*
NATIONAL RESPONSE CENTER:	(800) 424-8802
ABC TRANSPORTER:	(603) 555-3333

EMERGENCY COORDINATORS

CONTACT		PHONE NUMBER			
PRIMARY-	JOE GENERATOR:	Work:	EXT. 123	Home:	(603) 555-4444
ALTERNATE #1-	ANITA C. PROFIT:	Work:	EXT. 456	Home:	(603) 555-5555
ALTERNATE #2-	JOHN HAZLEAK:	Work:	EXT. 789	Home:	(603) 555-6666



Env-Wm 509.02(b) Each full quantity generator shall post a list of the steps to take if an emergency occurs and the following emergency numbers at the nearest telephone to each hazardous waste storage area:

(1) The emergency coordinators, home and office;

(2) The fire department, police department, hospital and state of New Hampshire and local emergency response teams that may be called upon to provide emergency services, unless the facility has a 24 hour response team designated to provide emergency services whose number is posted; and

(3) The location of fire extinguishers and spill control material and, if present, fire and internal emergency alarm.